

Fig. 1 Block Diagram of Tree System

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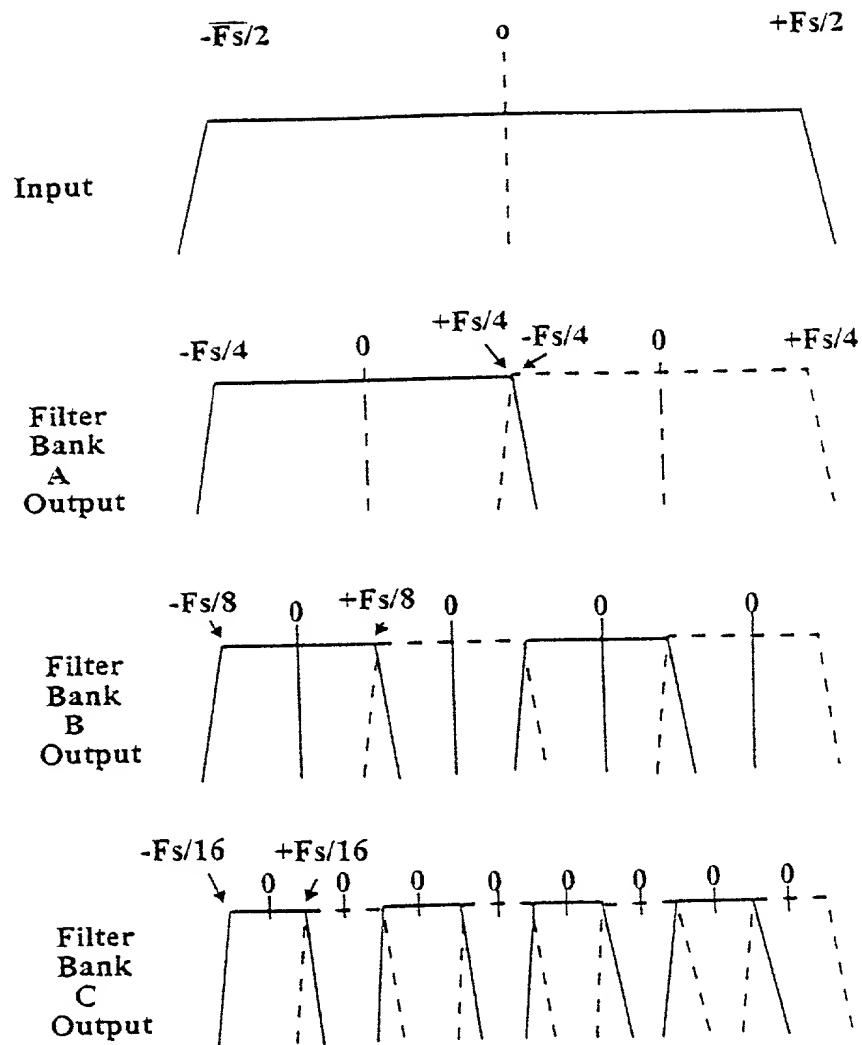


Fig. 2 Frequency Band Splitting

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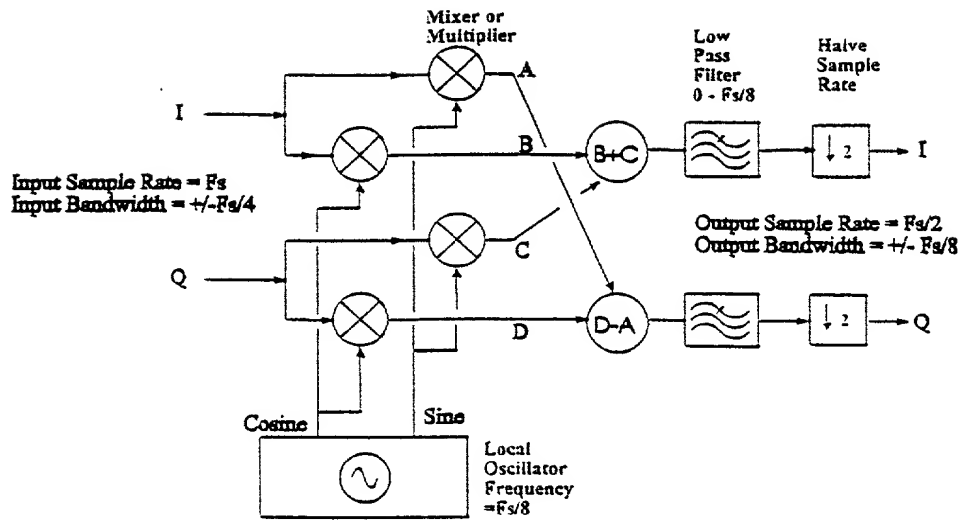


Fig. 3 Complex Down-Converter (CDC)

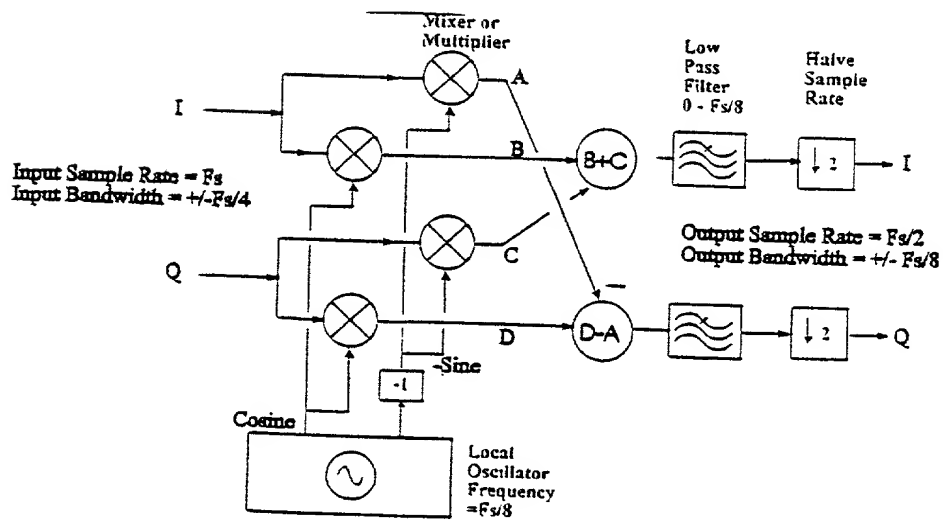


Fig. 4 Complex Up-Converter (CUC)

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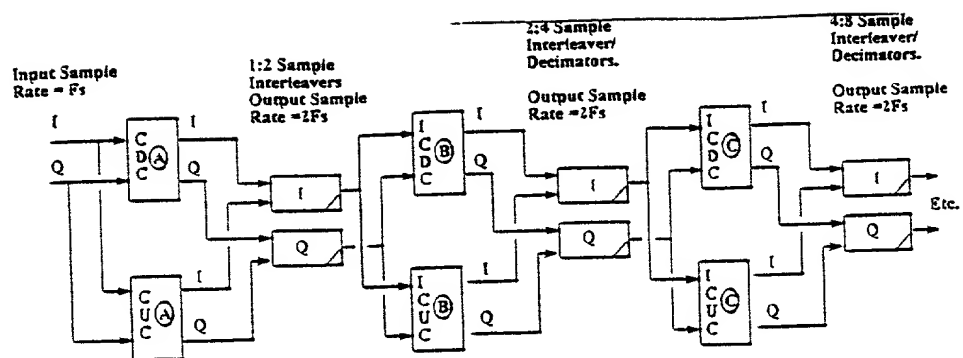


Figure 5 Block Diagram of Interleaved System

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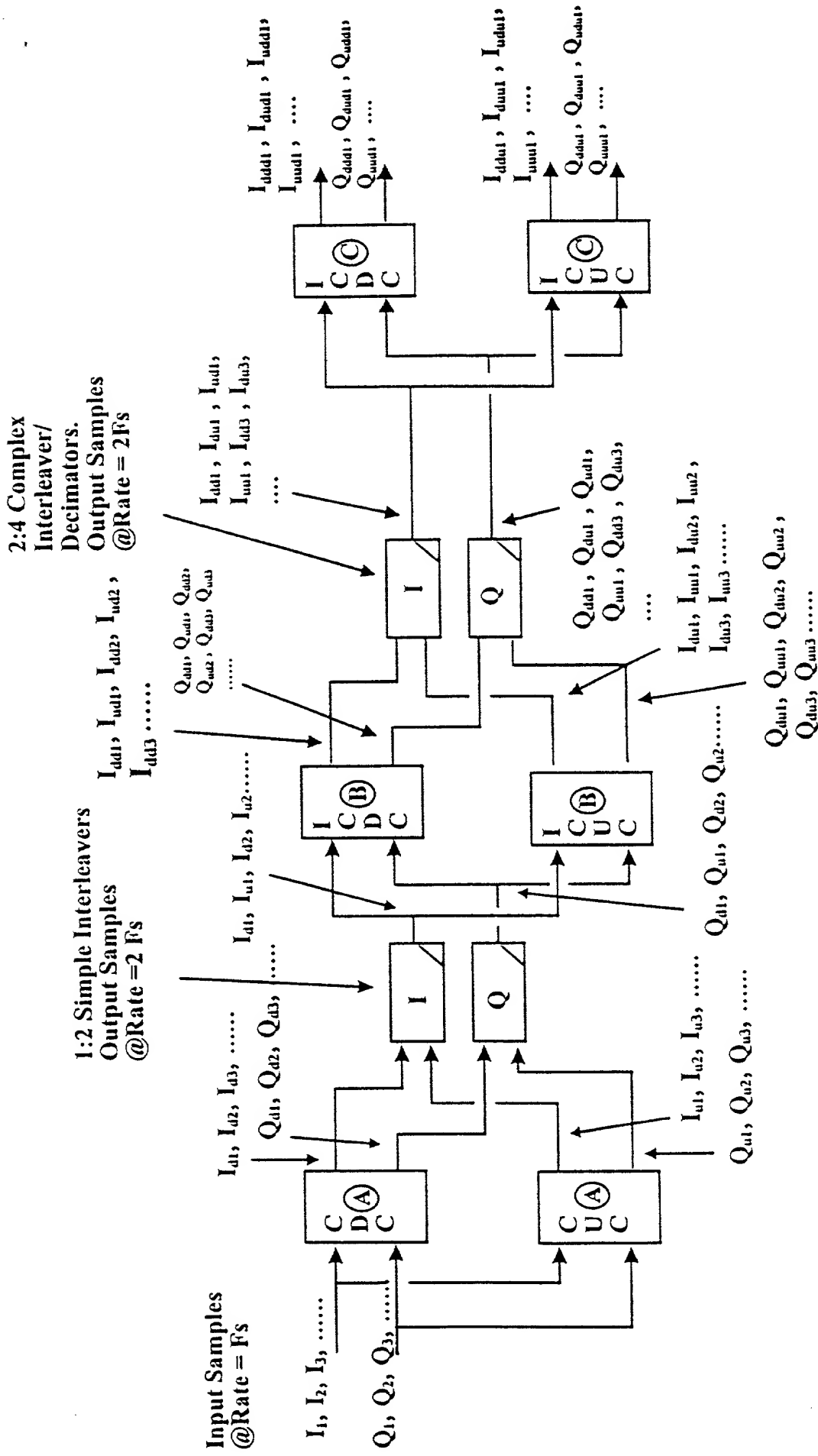


Figure 6 Detail of Interleavers

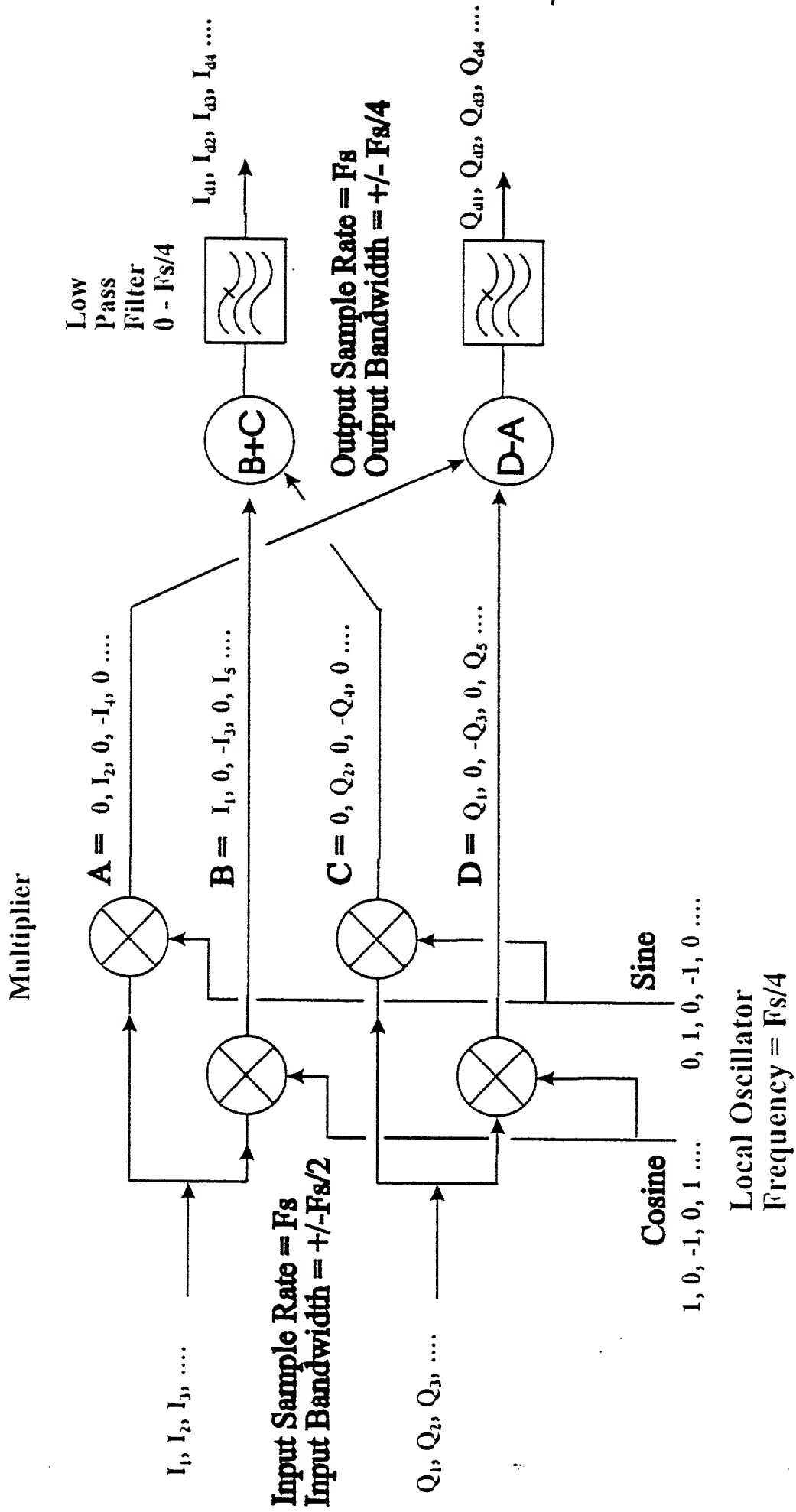


Fig. 7 BASIC CDC(A) ARCHITECTURE

Multiplier

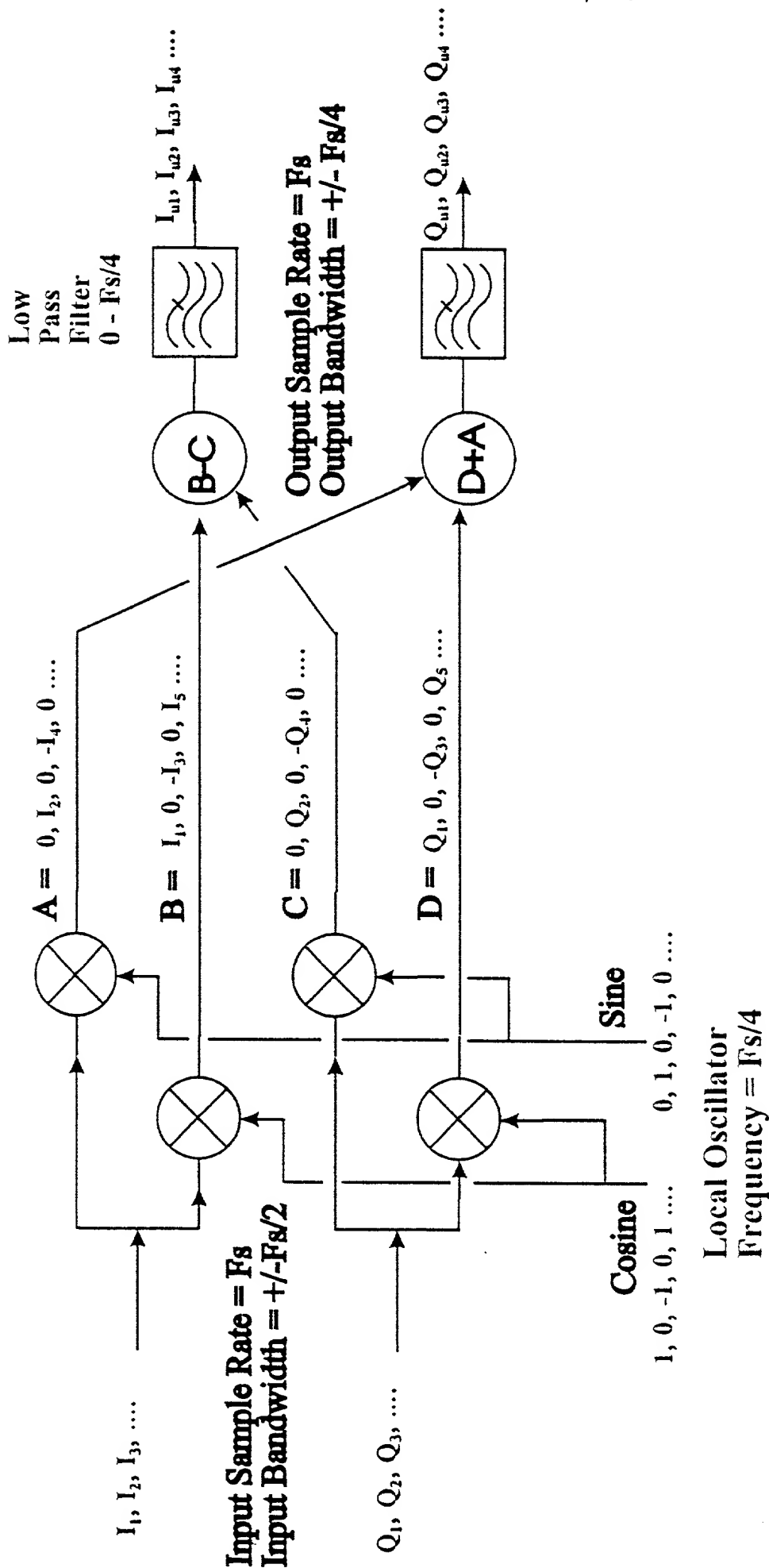


Fig. BASIC CUC(A) ARCHITECTURE

Input Sample Rate = $F_s/2$
 Input Bandwidth = $\pm F_s/2$

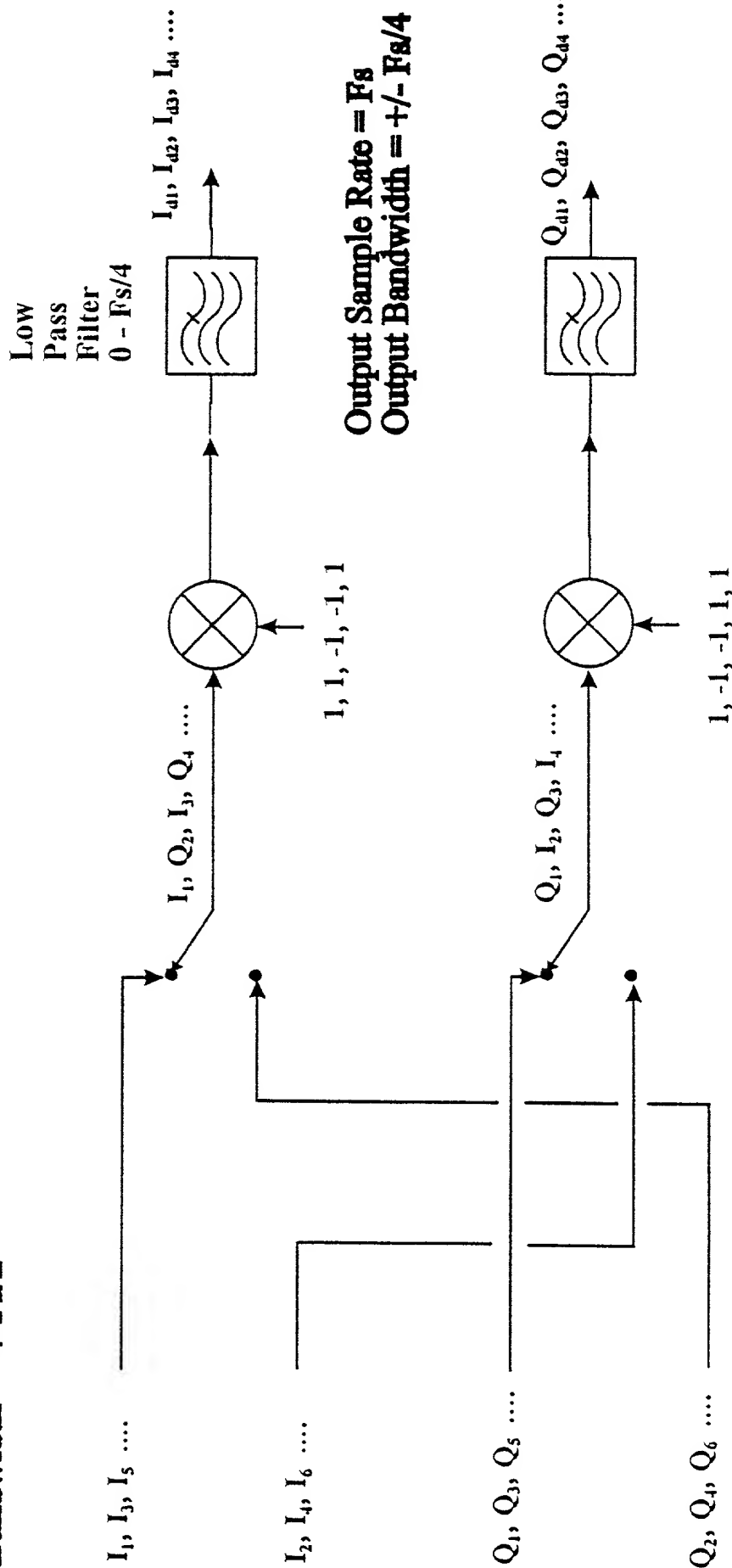


Fig. 9 MODIFIED CDC(A) ARCHITECTURE

Input Sample Rate = $F_s/2$
Input Bandwidth = $\pm F_s/2$

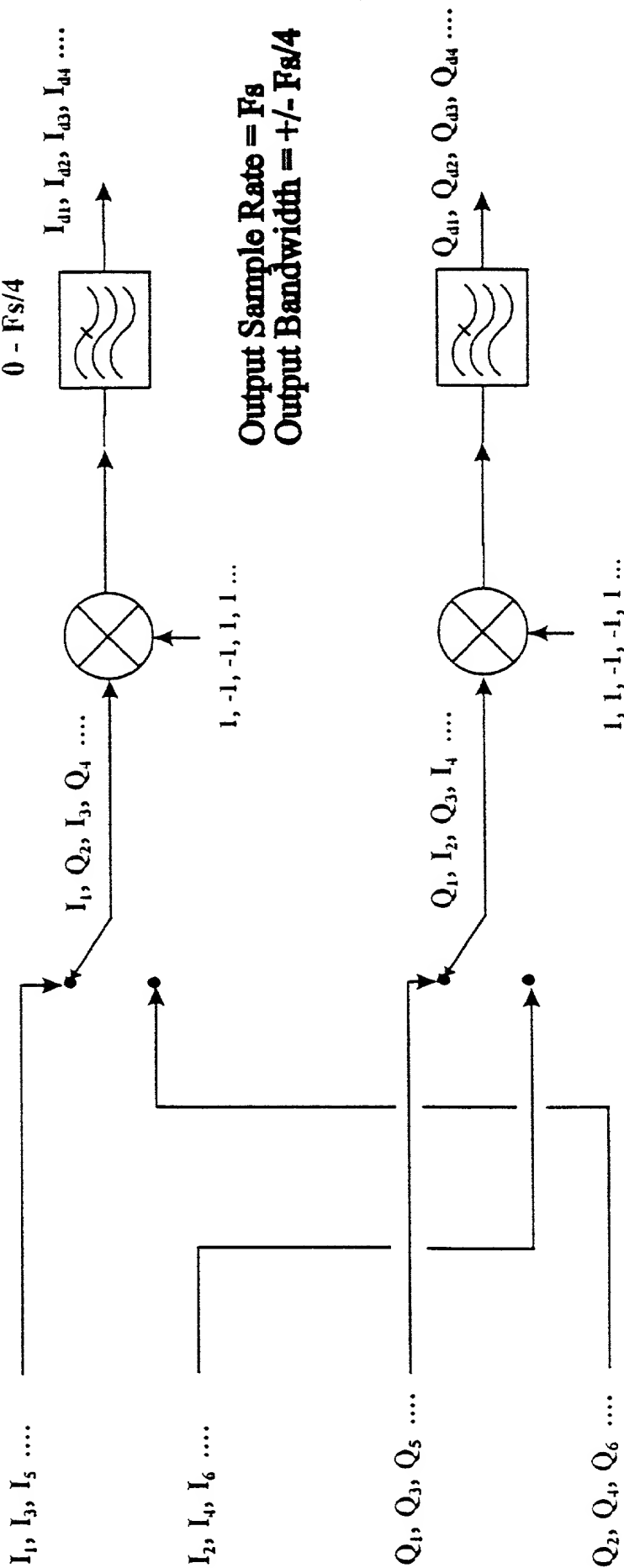


Fig. 10 MODIFIED CUC(A) ARCHITECTURE

Low
Pass
Filter
 $0 - F_s/4$

Input Sample Rate = $F_s/2$
Input Bandwidth = $\pm F_s/2$

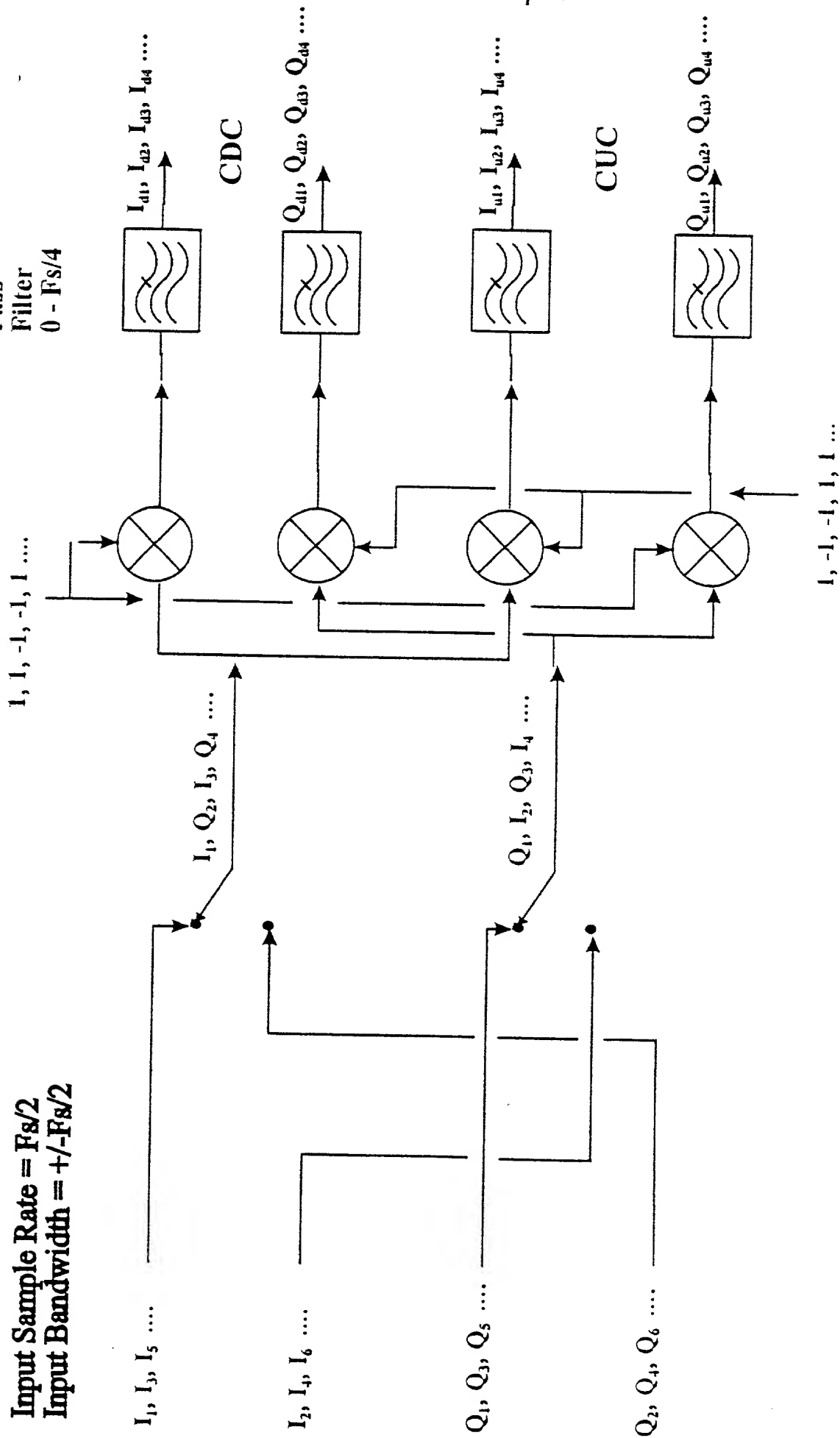


Fig. || COMBINED CDC(A) & CUC(A) ARCHITECTURE

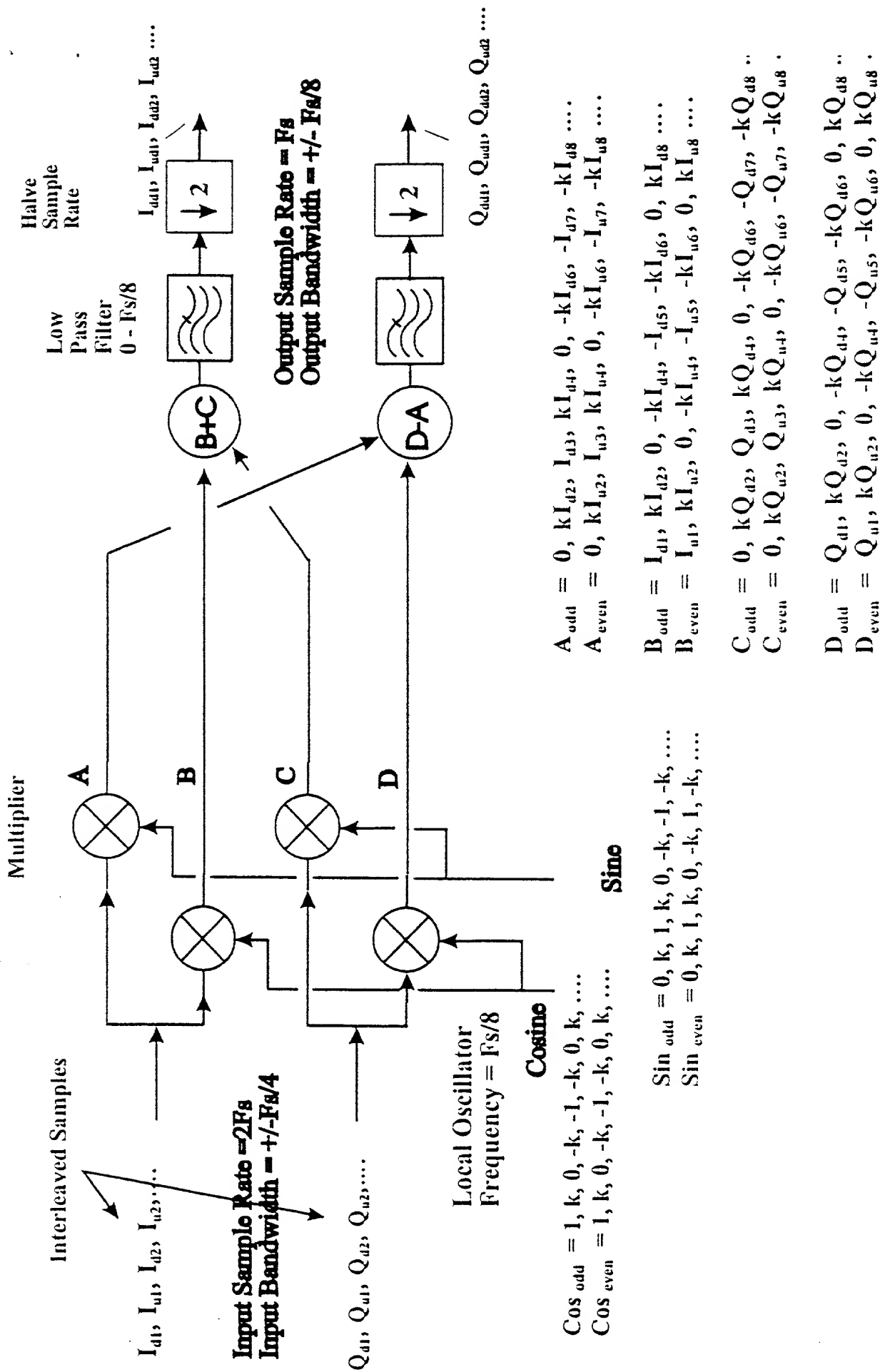
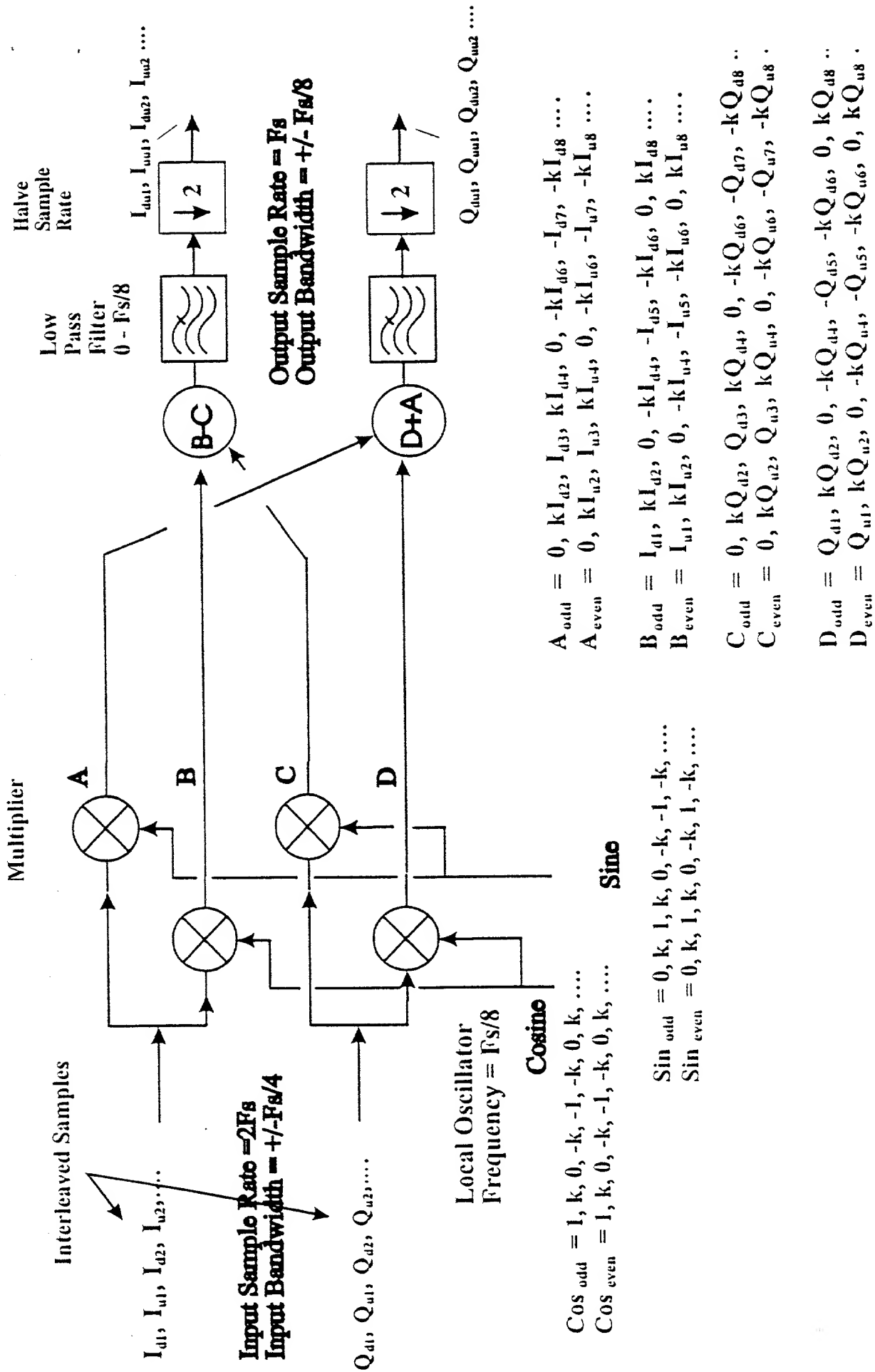
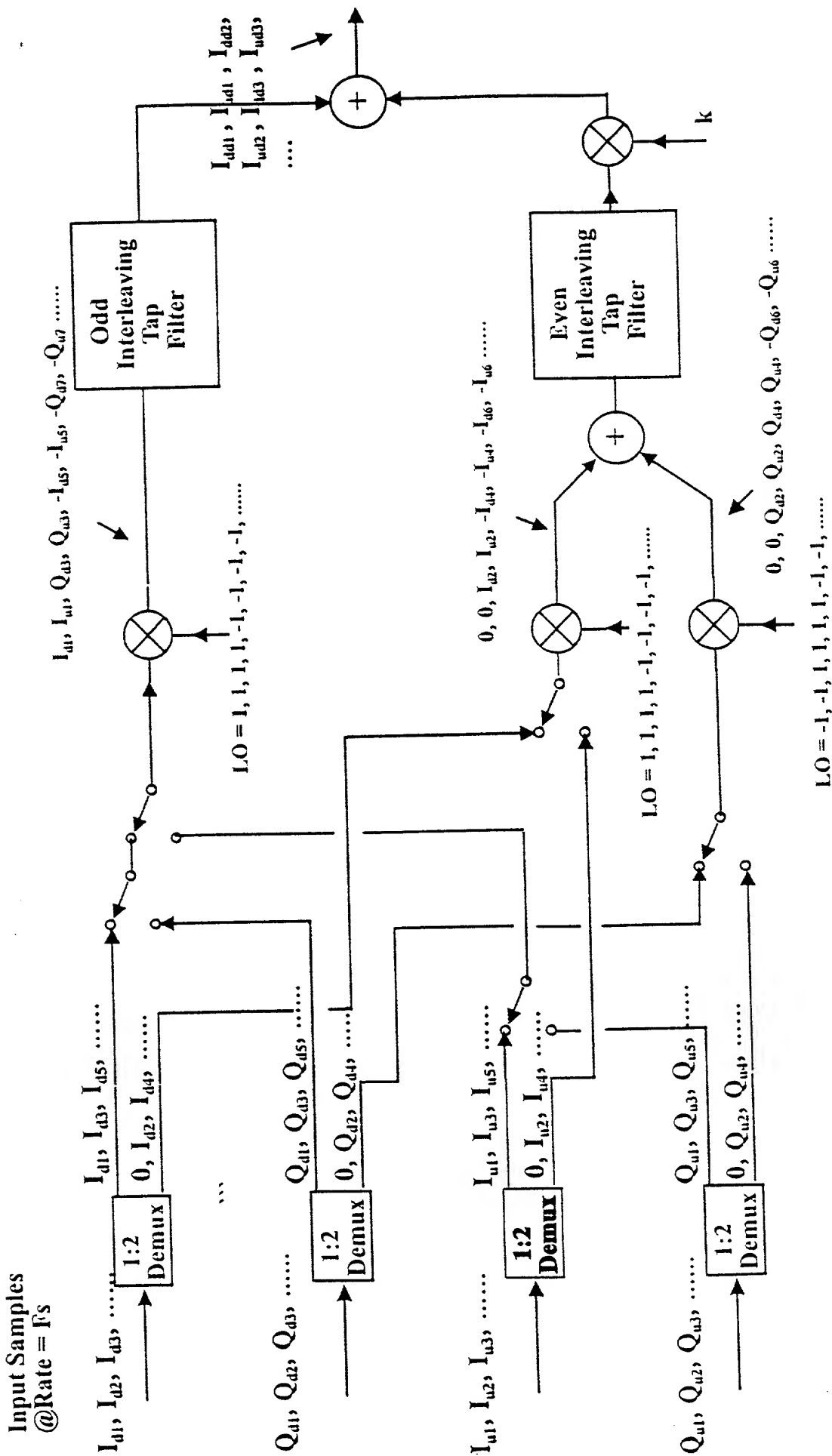


Fig. 12 BASIC ICDC(B) ARCHITECTURE





Input Samples
@Rate = F_s

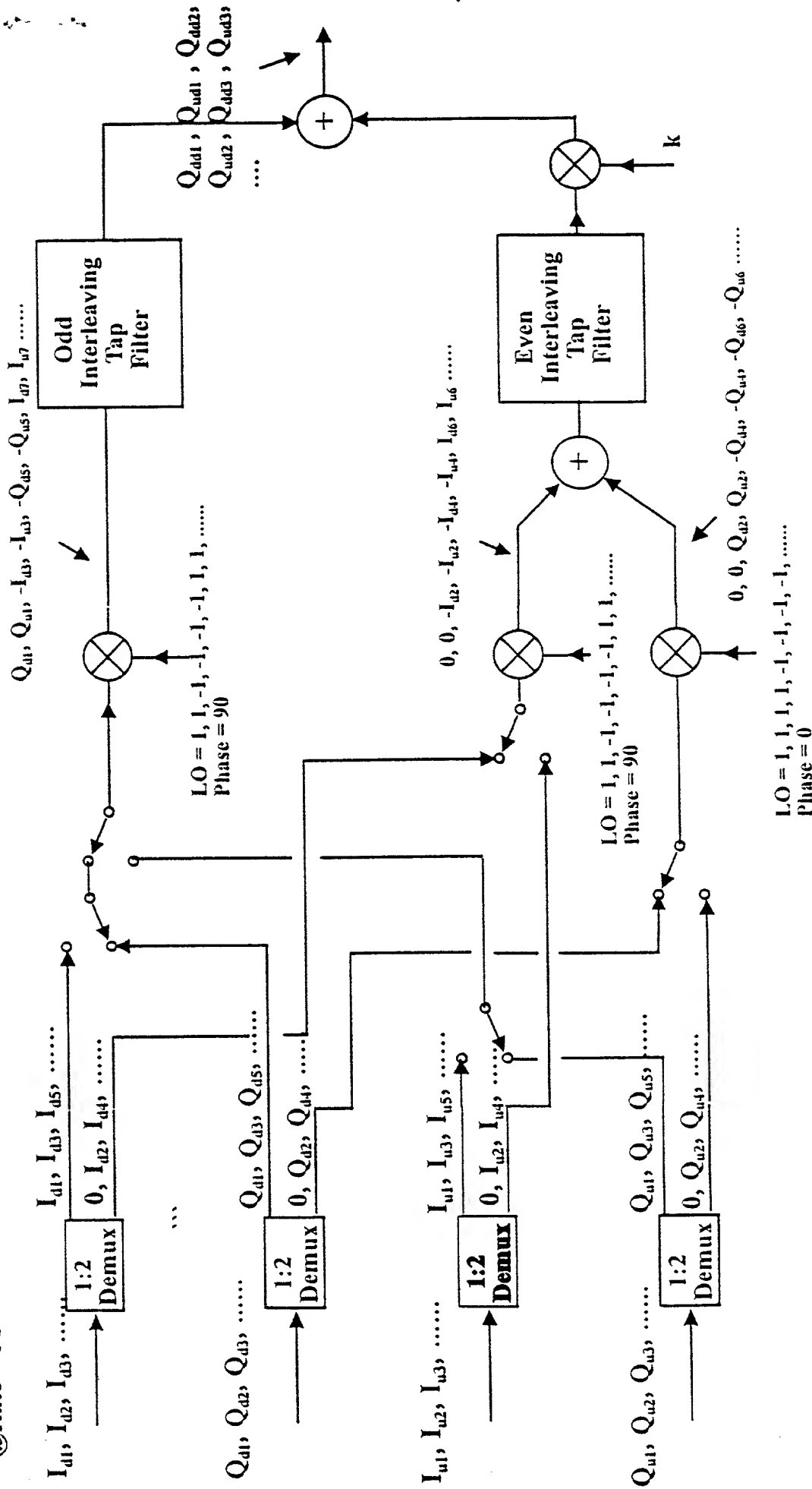


Figure 1 Simplified ICDC(B), Q channel Only

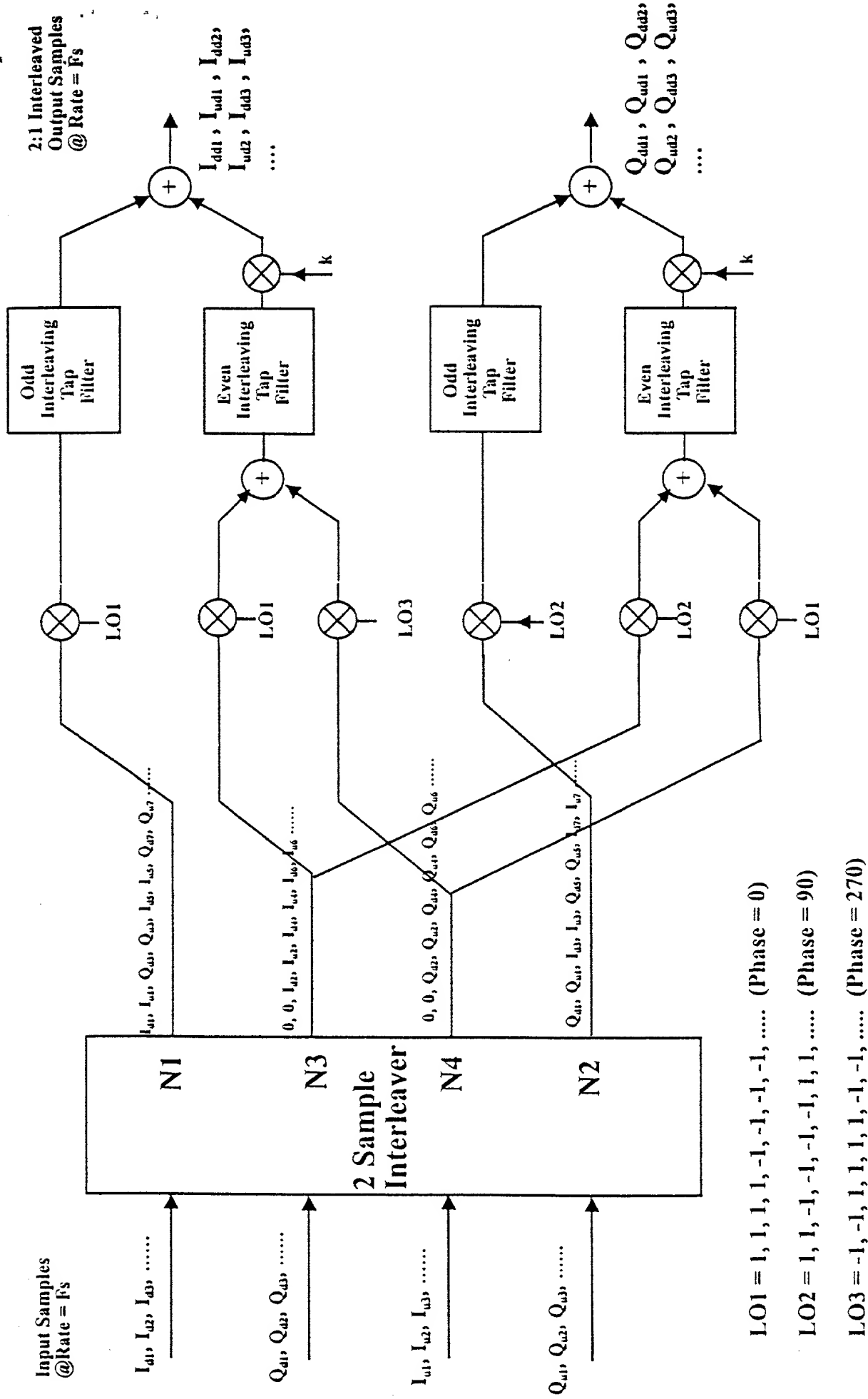


Figure 16 Simplified ICDC(B), Combined I & Q Channels

Input Samples @ Rate = f_s

$I_{u1}, I_{u2}, I_{u3}, \dots$

$Q_{u1}, Q_{u2}, Q_{u3}, \dots$

$I_{u1}, I_{u2}, I_{u3}, \dots$

$Q_{u1}, Q_{u2}, Q_{u3}, \dots$

2 Sample Interleaver

N1 N2 N3 N4

LO1 LO2 LO3 LO4

Odd Interleaving Tap Filter

Even Interleaving Tap Filter

2:1 Interleaved Output Samples @ Rate = f_s

$I_{du1}, I_{du2}, I_{du3}, \dots$

$Q_{du1}, Q_{du2}, Q_{du3}, \dots$

LO1 = 1, 1, 1, 1, -1, -1, -1, -1, (Phase = 0)

LO2 = 1, 1, 1, 1, -1, -1, -1, -1, (Phase = 90)

LO3 = -1, -1, -1, -1, 1, 1, 1, 1, (Phase = 270)

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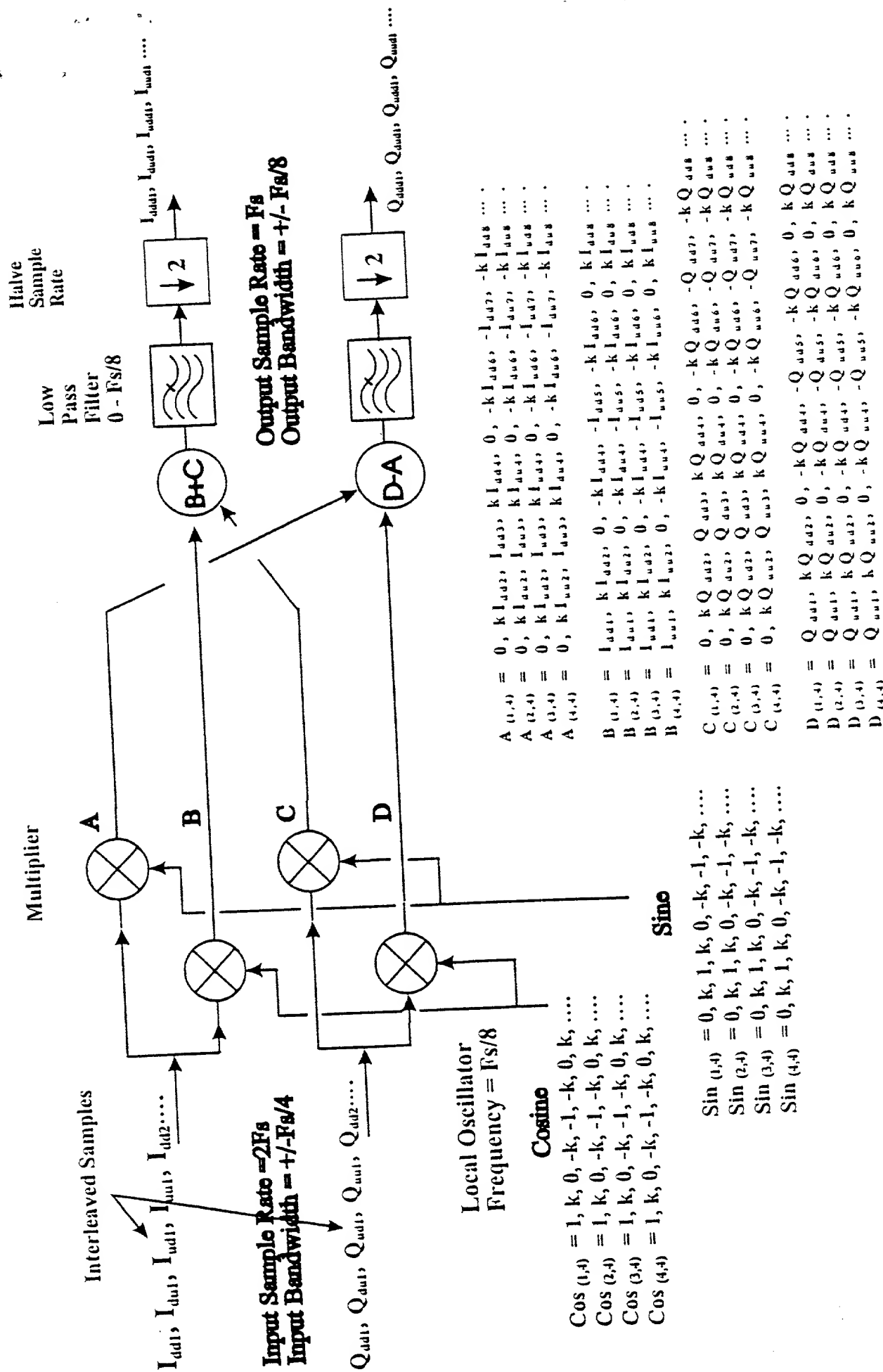


Fig. 1 & BASIC ICDC(C) ARCHITECTURE

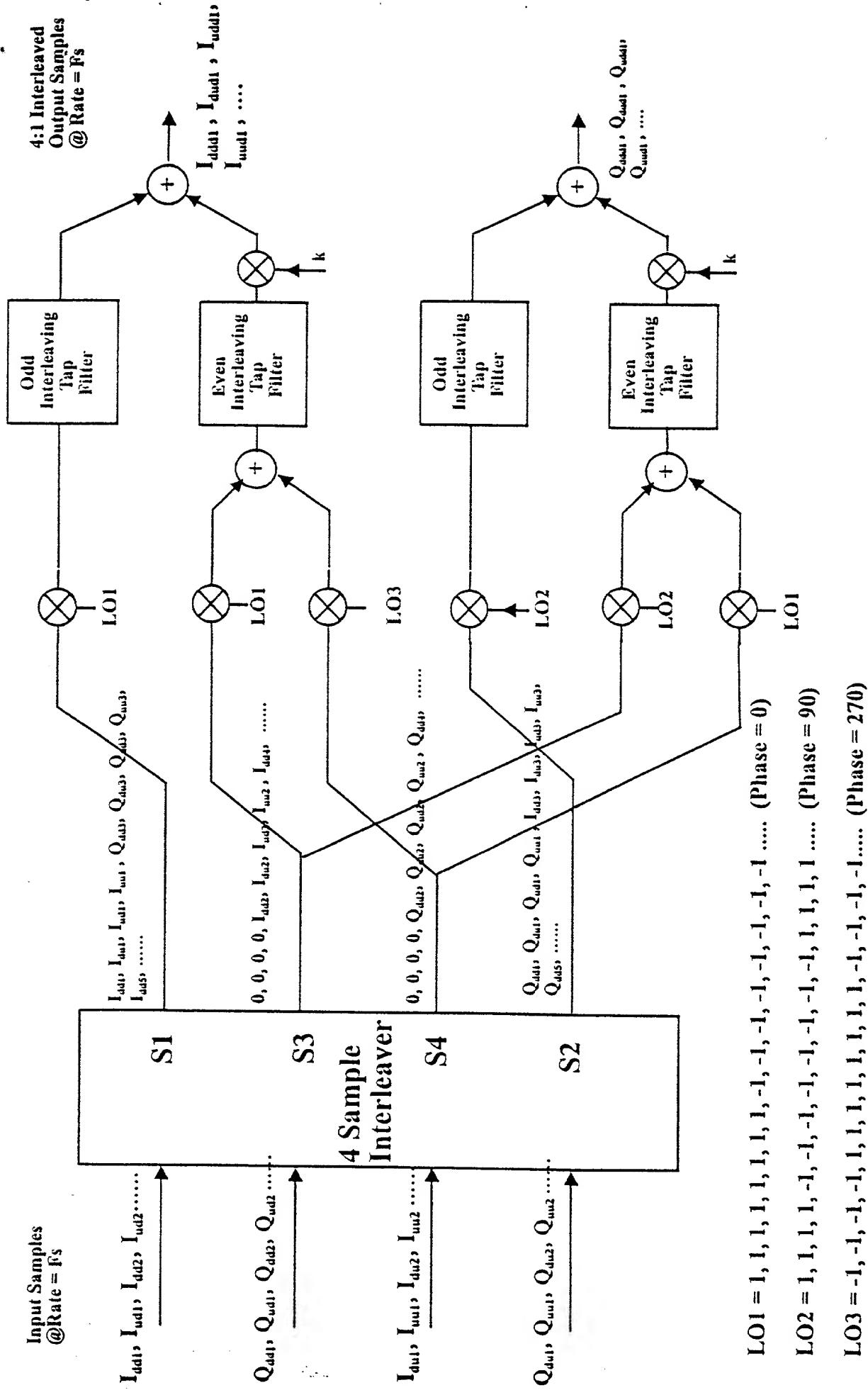


Figure 19 Simplified ICDC(C), Combined I & Q Channels

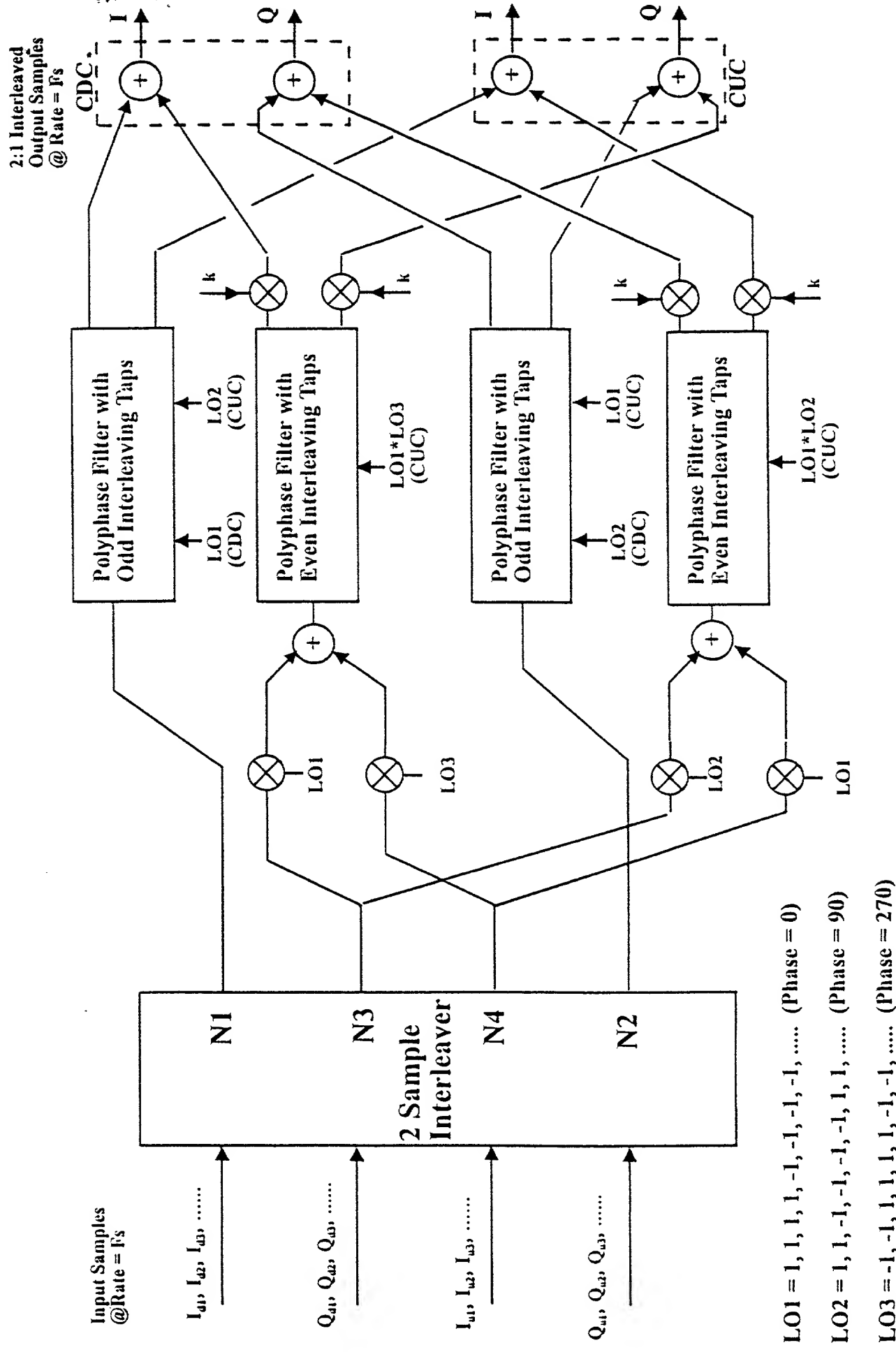


Figure 20 Combined ICDC(B) / ICUC(B) With Polyphase Filters